

**AMENDMENTS TO THE CLAIMS**

Claim 1 (Currently Amended) An optical functional waveguide comprising:  
a substrate;  
a clad formed on said substrate;  
a core which is formed in said clad and serves as an optical path for propagating  
light;  
a plurality of lens-shaped groove structures formed so as to align at a  
predetermined interval along the optical path and fragmentize the optical path and  
being filled with a material having a refractive index temperature coefficient different  
from that of said core; and  
a heater electrode interposed between said plurality of groove structures  
provided along the optical path for controlling a temperature of said material and a  
divergence angle of the propagating light.

Claim 2 (Canceled)

Claim 3 (Previously Presented) An optical functional waveguide according to  
claim 1, wherein at least one of the end faces of said plurality of groove structures is  
tilted from a position perpendicular to the optical path.

Claim 4 (Original) An optical modulator comprising the optical functional  
waveguide according to claim 1 and modulating amplitude or phase of light.

Claim 5 (Previously Presented) An arrayed waveguide grating comprising the  
optical functional waveguide according to claim 1 in a slab waveguide.

Claim 6 (Previously Presented) A dispersion compensation circuit comprising  
the optical functional waveguide according to claim 1 in the vicinity of a coupling portion  
that two arrayed waveguide gratings are coupled to each other in a cascade.

Claim 7 (Previously Presented) A dispersion compensation circuit comprising:  
a mirror provided in a waveguide and arranged in the vicinity of a spectrum  
plane; and  
the optical functional waveguide according to claim 1 arranged in the vicinity of  
said mirror.

Claim 8 (Canceled)

Claim 9 (Previously Presented) An optical functional waveguide according to  
claim 1, wherein said groove structure is provided at a slab waveguide side of a  
coupling portion of the slab waveguide and a single mode waveguide.

Claim 10 (Canceled)

Claim 11 (Currently Amended) An optical functional waveguide comprising:  
a substrate;  
a clad formed on said substrate;  
a core which is formed in said clad and serves as an optical path;  
a plurality of wedge-shaped groove structures formed so as to align at a  
predetermined interval along the optical path and fragmentize the optical path and  
being filled with a material having a refractive index temperature coefficient different  
from that of said core; and

a heater electrode means interposed between said plurality of groove structures  
provided along the optical path for controlling a temperature of said material and a  
guide direction of light.